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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/722,005	11/25/2003	Mitsuhiro Togashi	LEPA121981	6985
26389	7590	09/20/2005	EXAMINER	
CHRISTENSEN, O'CONNOR, JOHNSON, KINDNESS, PLLC			HARRINGTON, ALICIA M	
1420 FIFTH AVENUE			ART UNIT	
SUITE 2800			PAPER NUMBER	
SEATTLE, WA 98101-2347			2873	

DATE MAILED: 09/20/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/722,005

Applicant(s)

TOGASHI, MITSUHIRO

Examiner

Alicia M. Harrington

Art Unit

2873

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 27 June 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,2,5-12,15 and 16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2,5-12,15 and 16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
  - 2) ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

**DETAILED ACTION**

***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1,2,7-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyake (US 5,515,354) in view of Horinouchi et al (US 5,377,177).

Regarding claim 1, Miyake discloses an object lens system arranged to face an optical disc (10- for example see figures 1,2 or 7), collect light and irradiate the light onto the optical disc, comprising:

a direction changing means (12) for changing a moving direction of incident light to an orthogonal direction thereof and emitting it onto the optical disc (see figures 1 or 7), the direction

changing means being provided with a hologram (13a-see figure 2) on one side surface thereof; and

a solid lens (6- single lens (no air gaps) double convex collimator) disposed in front of an incident surface (incident from the laser beam) of the direction changing means.

However, Miyake fails to specifically disclose the direction changing means is triangular

prism that has an incident surface, a reflecting surface and an emitting surface; and the hologram is formed on the emitting surface of the triangular prism.

In the same field of endeavor, Horinouchi discloses in figures 6 and 7 an embodiment of an objective lens system where a direction changing means (105) is a polygon shape figure such that light from a laser is transmitted through an incident surface (102), to a reflecting surface (104) and through an emitting surface (105), and the hologram (112) is formed on the emitting surface of polygon. As illustrated in figure 7, the optical path of light on the three surfaces is a trace of a triangular prism. Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Miyake to form a direction changing means in a form of triangular prism with three claimed surfaces, since the prior art optical systems teach the structured light path in an objective lens system of compact form using polygons, a triangle is form a polygon and triangle shaped direction changing means are known in optical disc systems. Additionally, the triangle shaped direction changer is the functional equivalent optical (reflector, transmitter/splitter) of the plate shaped direction changer; and it has been held that a mere change in shape without affecting the functioning of the part would have been within the level of ordinary skill in the art, *In re Dailey et al*, 149 USPQ 47; *Eskimo Pie Corp v. Levous et al.*, 3 USPQ 23.

Regarding claim 2, Miyake discloses an object lens system of claim 1, further comprising an optical pick-up apparatus (5) capable of emitting light (1) onto the object lens system and detecting (3) the intensity of reflected light obtained by an optical disc (applicant is inherently claiming how a disc is read).

Regarding claim 7, Miyake discloses an object lens system according to Claim 1, wherein the solid lens is a convex lens (6) that is disposed from the incident surface of the direction changing means (12; see figure 1).

Regarding claim 8, Miyake discloses an object lens system according to claim 7, further comprising an optical pick-up apparatus (5) to emit light (1) onto object lens system and detect (3) the intensity of reflected light obtained by an optical disc (applicant is inherently claiming how a disc is read).

Regarding claim 9, Miyake discloses an object lens system according to Claim 1, wherein the hologram is formed of light transparent materials (see figure 2, 13A is a transmissive holographic element; col. 4, lines 21-35).

Regarding claim 10, Miyake discloses an object lens system according to claim 9, further comprising an optical pick-up apparatus (5) to emit light (1) onto the object lens system and detect (3) the intensity of reflected light obtained by an optical disc (applicant is inherently claiming how a disc is read).

3. Claims 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyake (US 5,515,354) in view of Horinouchi et al (US 5,377,177), further in view of Braat (US 4,986,641).

Regarding claim 5, Miyake and Horinouchi disclose an object lens system according to Claim 3, wherein: Horinouchi teaches the prism (105) is provided on the incident surface (102) thereof with a second surface that causes the incident light to diverge (area of output from 109) in a direction orthogonal to the optical disc (103); the prism is provided on the emitting surface (105) thereof with a first surface (area output from

112,117) that converges the diverging incident light; and the prism (105) provided on the first surface thereof with the hologram. Additionally, as discussed above in claim 3, the light path traces that of a triangular prism. Again, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Miyake to form a direction changing means in a form of triangular prism with three claimed surfaces that diverge and converge light as claimed, since the prior art optical systems teach the claimed structured light path in an objective lens system using polygons in a compact objective system and it is the functional equivalent of the plate shaped structure.

However, Miyake and Horinouchi fail to specifically disclose using a concave surface area as the incident surface (second concave surface) and a concave surface area as the emitting surface (first concave surface). Although, it is known in the art to use concave surfaces on objective lens to diverge and converge light in an objective system as taught by Braat.

Braat discloses an objective system where a concave incident surface (22) receives laser light to diverge the beam and a concave emitting surface (23) converges the beam to focus on an optical disc (see figure 1 for example; col. 5, lines 45-55). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Miyake and Horinouchi, to include concave surfaces on the prism since this structure provides the equivalent function of diverging light on an incident surface and converging the light beam on an emitting surface, and prior art teaches such a system in an objective lens system for compact optical recording systems.

Regarding claim 6, Miyake discloses the object lens system claim further comprising an optical pick-up apparatus (5) to emit light (1) onto the object lens system and detect (3) the intensity of reflected light obtained by an optical disc (applicant is inherently claiming how a disc is read).

4. Claims 11,12,15,16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Oudenhuisen (US 4,789,977). Regarding claim 11, Oudenhuisen discloses an object lens system (see figure 3 for example) arranged to face an optical disc (60), collect light and irradiate the light onto the optical disc, comprising:  
direction changing means (58-PBS; see col. 2, lines 25-45 and col. 3, lines 1-30) for changing moving direction of incident light to an orthogonal direction thereof and emitting it onto the optical disc;  
hologram unit (30;col.), lines 25-45) disposed front of the direction changing means and provided with a hologram (hologram grating); and  
a solid lens (59;a single convex planar lens-no air gaps) disposed between the direction changing means and the optical disc. Oudenshuysent fails to specifically disclose an embodiment where the beamsplitter is substantially planar. However, Oudnenshuysen discloses the claimed invention, and it would have been obvious to one of ordinary skill in the art at the time the invention was made to use a planar beam splitter, since they are well known in the art, provide the function equivalent, and it has been held that a mere change in shape without affecting the functioning of the part would have been within the level of ordinary skill in the are, In re Dailey et al, 149 USPQ 47; Eskimo Pie Corp v. Levous et al., 3 USPQ 23

Regarding claim 12, Oudenhuisen discloses an object lens system according to claim 11, further comprising an optical pick-up apparatus (see col. 3, lines 15-25) to detect the intensity of reflected light obtained by an optical disc. Oudenhuisen also has a light source. (applicant is inherently claiming how a disc is read). Oudenhuisen fails to specifically disclose the optical apparatus emits light and detects (in the same unit). However, it would have been obvious to one of ordinary skill in the art at the time the invention was made for the optical pickup apparatus to emit and detect light in an optical recording medium, since the integration of the a laser diode and photo detector in the optical disc system is notoriously well known, the Examiner takes official notice to that fact. Furthermore, this implementation allows the system to be more compact and lighter weight optical system.

Regarding claim 15, Oudenhuisen discloses an object lens system according to claim 11, wherein the hologram is formed of light transparent materials (see figure 3, transmissive hologram-see col. 3, lines 1-30).

Regarding claim 16, Oudenhuisen discloses an object lens system according claim 15, further comprising an optical pick-up apparatus (see col. 3, lines 15-25) provided with the object lens system of claim 15 detect the intensity of reflected light obtained by an optical disc. Oudenhuisen also has a light source. (applicant is inherently claiming how a disc is read). Oudenhuisen fails to specifically disclose the optical apparatus emits light and detects (in the same unit). However, it would have been obvious to one of ordinary skill in the art at the time the invention was made for the optical pickup apparatus to emit and detect light in an optical recording medium, since the integration



of the a laser diode and photo detector in the optical disc system is notoriously well known, the Examiner takes official notice to that fact. Furthermore, this implementation allows the system to be more compact and lighter weight optical system.

***Response to Arguments***

5. Applicant's arguments filed 6/27/05 have been fully considered but they are not persuasive. Applicant argues that Miyake (US 5,515,354) teaches increasing the distance between the disc surface and surface of the hologram. However, Miyake didn't state applicant's assertion of Miyake purpose. Miyake clearly recites improving the diffraction effect of the hologram (see abstract, col. 7, lines 35-45; and col. 9, lines 30-40). Thus, Miyake is an optical pickup system with a direction-changing element containing a holographic surface for causing the moving direction of incident light to an orthogonal direction and emitting it onto a disc, where the hologram is on one side surface. Horinouchi (US 5,377,177) further teaches an optical pick up with a direction changing means is also used to cause causing the moving direction of incident light to an orthogonal direction and emitting it onto a disc, where the hologram is on one side surface. Thus, both teach using a diffraction effect to emit light onto a disc. Horinouchi further teaches the structure of the direction changing means can be polygon with a cross-sectional triangular configuration. Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include a direction changing means comprising a triangular prism that has an incident surface, reflecting surface and emitting surface, as taught by Horinouchi, since it is known in the art and for the purpose of providing functionally equivalent direction changer. Additionally, it has

been held that a mere change in shape without affecting the functioning of the part would have been within the level of ordinary skill in the art, *In re Dailey et al*, 149 USPQ 47; *Eskimo Pie Corp v. Levous et al.*, 3 USPQ 23. Thus, the rejection will be repeated.

***Conclusion***

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alicia M. Harrington whose telephone number is 571 272 2330. The examiner can normally be reached on Monday - Thursday 9:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Georgia Epps can be reached on 571 272 2328. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



AMH

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